JPRS 78868

31 August 1981

USSR Report

ENERGY

No. 71

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ELECTRIC POWER

CONSTRUCTION PROGRESS ON EKIBASTUZ GRES-1 REPORTED

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 2 Jul 81 p 2

[Article by Yu. Pautov: "The Days Until Start-Up Are Numbered"]

> [Text] At present, the Ekibastuz power-plant construction workers are being congratulated on their great triumph of labor. Installation work has been successfully completed on turbogenerator No 4. This unit, with an output of 500 MW, completes the first stage of the GRES-1.

The multicolored world of electric lights and blinking indicator bulbs rules in this exacting environment. The control-panel operators of the GRES-1 electric cascade prepare to accept the massive flow of power from the fourth generating unit on their instrument sections. All the major installation operations on this unit were recently completed. Today's heroes are members of the turbine and generator installation team of Fedor Pavlovich Gunbin from a division of the Sibenergomontazh trust. Their five months of intensive work on the assembly of the unique equipment over, the installation workers do not conceal their happiness at this triumph of labor.

The team chief shared his impressions with me. "We did not simply get a fourth power unit. It was just like with the first three units. Although they are identical according to the blueprints, each has its own 'character,' its own personality. It is how we tell them apart, as a mother distinguishes between twins."

Fedor Pavlovich laughs and jokes as if he has forgotten entirely the recent sleepless nights when he looked with alarm upon the pages of the calendar. The inexorable deadlines forced upon him to raise the pace to the limits of the possible.

As it happened, the heart of the power unit--the turbine--was manufactured by two different plants. When the parts arrived at Ekibastuz and the work crew began the installation proper, it turned out that many of the assemblies would not join up and painstaking on-site finishing work was required. The assemblers were not prepared for this kind of work. The installation area in the economically laid-out GRES building is not a factory shop where one can correct any oversight on the part of the supplier.

How did they get out of this fix? Gunbin thought about it. We have three such turbines behind us already. We have experience and it is suitable. Then the modern installer-power engineer went to work with his head and not only his hands. Our men do not stand around making jokes. The incorrectly welded couplings were disassembled and put back together better than in the plant. They did the same thing with the other assemblies. Our tolerances are exact and, despite other similar meddling, were adhered to as much as possible. In many ways, the success in the timely conclusion of our work was determined by another innovation, used for the first time in this country on the GRES-1.

We are speaking here of the great degree of efficiency brought about through the introduction of a method for the combined assembly of the units and modular components on the ground and for their subsequent delivery to the installation site. This method was not used for the first two turbogenerators, owing to circumstances. Only after the construction of a district collective base were continuous-production techniques employed on the assembly of the third generating unit. Installation of the fourth turbine using multi-ton assemblies helped to achieve the necessary increase in the pace of the work and to complete the assembly in half the time needed for the first turbine. Now large-scale modular installation is a solid part of Gunbin's team's technique at the construction site. In the future, as the team leader believes, assembly times during the erection of the second stage of the GRES-1 will be reduced continually.

"Turbines with an output of 500 MW had to be installed by us for the first time," said Fedor Pavlovich, looking at the unit's shiny housing. "I have put in 27 years on them and have traveled over the entire country. I was in Finland where I made 200 and 300-MW machines. As soon as I found out that such powerhouses would be operating in Ekibastuz on the cheapest coal in the country, I came directly here. I was attracted by their simplicity and their universal properties."

"If one is to draw the schematic for the turbogenerator," continued the team chief, "it proves to be simple and understandable. Steam at 240 atm is delivered from the boiler to the turbine's vanes. It rotates a shaft which is firmly affixed to the rotor of the generator. It in turn excites the unheard-of power level of 500 MW in the windings. When I see how this power unit which we assembled with our own hands begins to come alive and pick up revolutions, words cannot express the feelings."

"One must see how the steam heats up the pipes to such a degree that they shine in the dark with a crimson shade. I just cannot get used to it, even though I have long known that the temperature within them is 540 degrees. I stand there bewitched and am unable to turn away from the generator where magically the mechanical and thermal energies are converted into electrical. It is the same with all our installation workers."

Someone's voice interrupted this momentary lyrical digression. Some malfunctions had been detected in the oil system. The major work was over, but the finishing operations on the turbine unit's complicated technical layout still requires much effort and energy.

First-class installation workers P. Potapov, I. Abashev, O. Tsyganov, G. Rabskiy, A. Beynarovich, A. Baranovich and G. Rozovel still do not deviate from the work. Watching carefully to see how the preparation and firing-up of the boiler goes are specialists from a section of the Sredazenergomontazh trust who have assembled the boiler unit under the leadership of their chief, member of the construction project party committee V. Novikov. Here also is the work team of central-heating specialists of B. Aralbayev who have carried out their work well and with a high degree of quality.

Soon, very soon, all the preparatory start-up and adjustment work will be completed, and the turbine, to express it in the language of the specialists, will begin to rotate about is shaft. The mad swirl of steam bursts into the turbine's labyrinths and, having run up to its set 3,000 rpm, the unit delivers its desired output. This is the moment everyone waits for. The garish "lightning bolts" on the walls add to the happy, elevated atmosphere. They have one meaning: "Soon it will start! You will give us the fourth!" This power unit will bring the output of the station's operational stage to 2,000 MW.

On the approach to this city which has become famous everywhere, there is a huge shield upon which are carved the words: "The most important of all the issues is Ekibastuz and its significance for the Urals." Such is how V. I. Lenin appraised the role of the fuel reserves of this most rich region. The entire country is helping Kazakhstan develop this region. The Ekibastuz-Center power bridge will soon connect the most important industrial sections of the Soviet Union, thereby realizing the perspicacious words of Il'ich.

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CSO: 1822/203

ELECTRIC POWER

CAPABILITIES, CONSTRUCTION OF ATOMMASH PLANT ELABORATED

Moscow PRAVDA in Russian 11, 12 Jul 81

[Article by S. Bogatko and M. Kryukov]

[11 Jul 81 p 2; "Atommash. Part 1. A Sun Is Made in Volgodonsk"]

[Text] Atommash is a plant that is truly fantastic. It is as if it were a visitor from the future. It is not just a matter of the gigantic scale of the buildings, the uncommon power of the machines nor of the variety of devices and instruments. The fact is, the plant is capable of arranging the commercial production of nuclear boilers and heat exchangers. This means that the creation of atomic electric power stations will cease to be a "voyage into the unknown." It will be a normal operation: precise, measured, highly economical and safe. Atommash has been called upon to make the unique common, the expensive reasonable.

By the beginning of the 11th Five-Year Plan the total output of our AES's reached 13 million kW; that is, atomic power's share in our country's power balance is still small. The majority of AES's, however, are situated in the USSR's European sector and the accounting here is peculiar. If these were ordinary, non-nuclear stations, a huge mass of fossil fuel--coal and fuel oil--would have to be brought in yearly from the distant eastern regions. It has been estimated that each million kW produced at AES's results in an annual savings of two million tons of petroleum products or about three million tons of hard coal (that is, 50,000 rail cars). Under today's strained transportation conditions, this problem is not one of the simple ones.

The boilers and "filling" of atomic stations had up until now been built at ordinary machine-construction plants and in cramped quarters, using equipment that was not very suitable for such purposes. But, they did it! Industry bore the load and the people were equal to the task. Of course, these first high-voltage AES's were very expensive. The most important thing is that in the last 10 years the annual total introduction of new power capacities in our country hardly exceeded 10 million kW. For a rapidly developing economy such a pace was insufficient.

It was decided that a special plant, the flagship of domestic atomic machine construction--Atommash--should be built in order to manufacture the most critical and the heaviest AES equipment--reactors, steam generators, compensators. It will make it possible in the 11th Five-Year Plan to make the transition--to introduce 24 to 25 million kW. This will almost triple the outputs of our AES's, triple the generation of electric power by nuclear "fuel" and to pick up the pace in the future. Beginning with the present year, practically all growth in the production of electric power in the USSR's European sector will take place owing to the new AES's.

A pioneer of Volgodonsk has been the "million-watter"--a VVER-1000 reactor with an output of one million kW. It is considered the most suitable for commercial production and for accelerated AES construction using standard designs. The "million-watter" reactor on the Don is frequently called the "little sun." This metaphor came about because of the great hope that man will somehow learn how to derive sufficient power and heat at any location. A great deal of capital has been invested in the construction of the plant. Atommash has been planned in such a way that its shops can manufacture the most varied "vessels for the sun": "slow" and "fast" reactors which are much more powerful than the present-day atomic boilers for central heating to large cities. In the future there will be equipment for thermonuclear stations.

Work has been successfully completed on the first Don reactor building. It was very important to "drag" it along the entire technological chain. It does happen that machine tools are good when considered separately but that the surprises begin during full operation. It is not for show that the best equipment from around the world was brought together and built into the line.

It was even more important to subject the people not to tests nor to secondary orders, but to the main task for which they have come here and built the plant and city on the Don steppes. How will they make friends with one another and how will the collectives get along, when an experienced welder from the famous Izhora works alongside a young sheet-metal worker from a local enterprise? Many expert craftsmen became worried. They came here not to a finished shop, not in white gloves--they hung suspended for long hours in rain and cold in their installation belts and managed to get enough "flight time with the birds" against the panorama of the Atommash plant being built. It was necessary. They became good builders but sometimes they worried--had they forgotten their primary jobs?

The work on Atommash is special. Science now asserts in full confidence that atomic electric power stations pollute the environment with radioactive wastes (saying nothing of the dust and smoke) to a degree several times less than that of thermal stations. The guarantee of safety, however, is provided by the colossal efforts of scientists, engineers and workers at all stages.

All AES equipment is built under the most stringent control: standards and tolerances are most severe. It is possible that, in the future, cheaper and more efficient means of shielding will appear and that recollections of the present-day difficulties will bring smiles to the engineers' faces. There is still too little experience and it is too dangerous a thing to use the trial and error method.

Under the conditions found at Atommash, the responsibility, skills and knowledge of the workers and specialists play a decisive role. Frequently a defective part in a single position can have catastrophic consequences for the whole plant's yearly plan. It is no joke to ruin a 90,000-ruble part that weighs 40 tons. They measure things not seven but seven hundred times before they cut them. The treatment cycles are extremely lengthy. Under the most favorable of circumstances, the reactor moves for many weeks along the "conveyer."

Take welding, for example. The most skilful experts working in shifts weld certain seams continuously for 8 to 12 hours, building up tons of metal in up to 12 layers. When the pioneer unit was founded, there was among the seasoned workers a young, talented welder and recent graduate of the vocational and technical school, Lyudmila Zakorlyuka. In open plant competition she demonstrated her right to work on a level with the older skilled craftsmen in N. Golovin's team. The entire shop came to admire her work. The poets then wrote long about the "blue carnation" in her hands and about the eyes of the "mistress of the blue star."

One time we asked Nikolay Vasil'yevich Golovin if they would be able to repair the Tsar Bell in the Kremlin--the one that weighs 200 tons. It was cast by Motorin and his son and was broken in the fire of 1737. The conversation took place during a break in an Atommash brigade leaders conference. Golovin thought for a minute, and then in a serious tone of voice, as if speaking about a reactor, began to enumerate the procedures, the approximate cost of the work, the time periods needed to analyze the alloy and select fluxes and a metal to simulate the original. Then suddenly he smiled. "Why, it is a metal. That means we can weld it!"

"Only under one condition," added V. Pershin, general director of the Atommash production association. "The Tsar Bell will remain in Volgodonsk."

The bell itself, the cracks and the broken fragment are, of course, inviolable. At no time previously, however, could one dream of welding the crack. The bell could only have been broken up, melted down and an attempt could have been made to cast it anew. Who knows, maybe someday our descendants will wish to hear the voice of the Tsar Bell, for example, on the Day of Victory.

It would look like a toy in the main Atommash building. Lifting it would be a pleasure for the cranes capable of lifting 1,200 tons. The nut wrench there alone which screws down the top of the reactor weighs 32 tons. If the Tsar Bell were set on the plate of one of the turning lathes where they machine the cowling of the reactor housing, it would look modest: the diameter of the bell is almost seven meters, while the "caliber" of the lathe's chuck is ten meters. There is an entire turning arena with cutters on the walls. It is not without reason that the Italians gave the lathe the respectful yet humorous nickname, "Russian bull".

The first "million-watter" reactor housing passed all the positions, being the first not to loop around anywhere. At the end of the line it was tested on the stand for water, temperature and pressure. It lay there, almost shining, all in white and weighing 350 tons. There were 260 dimensions, and all were within nominal. Soviet metallurgists had created a fine steel for the reactors. It withstands high temperatures and pressures, does not corrode and does not become brittle from the radiation. Experts believe it to be the best in the world.

The running-in of the equipment is an important stage, but there is another more complicated problem yet to be solved--how to achieve the goal set by the 26th CPSU Congress--"put it into operation," that is, establish the operation of the most valuable equipment at a mounting pace. Heartened by this first success, the collective took on a counter-plan: in addition to the seven "million-watters," the collective would manufacture one more reactor housing. In view of the fact that the factory is continuing to grow, an expansion of its production will be even more complicated as well as putting in the "filling." When the enterprise is operating at its planned output--eight million kW of reactors annually--the collective will deliver housings with the richest of "dowries." Thus will Atommash free the hands of many other plants. This work will be done faster, better and cheaper at Volgodonsk.

Sometimes the key Volgodonsk personnel complain that the expressive name of the plant, Atommash, confuses the novices. They imagine that something like atom bombs are being built here. Not at all! The Volgodonsk plant is purely a machine-construction and machine-milling enterprise, only unprecedentedly mighty. Of course, just as in any form of modern industrial or agricultural production, there are reliably protective instruments and installations associated with radioactivity. For example, in the main building, the height of which is 50 m, bays looking like theater stages are fixed to the "main conveyer" at several places: they are huge, and are isolated from the general area by curtains. Only here is a "curtain" set on such powerful rollers that it looks as if it were made entirely from lead. These are roengten chambers with linear accelerators. Here is where they place the assemblies and reactor parts in order to probe the steel of the shells and the welded seams of the boilers. Examined with the all-penetrating rays and rung with ultrasonic waves, the reactor tells all about itself. In this "theater," the tiniest flaw will not be able to hide in the very core of the metal.

They estimate that the reactor housing will last for dozens of years. However, not a single "million-watter" has lived out its usefulness fully, and practice will show their true longevity. Nuclear power is moving ahead with cautious steps, for its beginning was too stormy and frightful. Why, let wisdom prevail, for one can be careless and burn to death on an ancient Russian stove, not to mention what could happen at a nuclear boiler.

The "aerial bridges" operate without interruption: Moscow-Atommash, Izhora-Atommash, Kaluga. There is an intense exchange of experience going on. Local traditions and methods do appear, however, which purely belong to Don Atommash. Foremost among these are the traditions of massed creative research. Seventeen work teams have been established, consisting of engineers, technicians and laborers. The scientist in the shop here is not a visiting author of a dissertation but rather a participant in production--an inspector, advisor and assistant. The competitions for the I. V. Kurchatov readings, the portrait of Niels Bohr in the plant laboratory--all of these are special characteristics of Atommash.

The famous name and undisputed success of the plant have, however, a dark side. Certain industry and planning organizations have begun to form an opinion that the epopee of Atommash's creation is all over and that all that remains is to reap the fruits. In the meantime, however, things are not that way at all. Here is just one fact. The plant is short about 400 workers, while 1,582 persons left last year alone. Quite possibly, there were among them some individuals with work permits for Atommash whom it was a relief to get rid of. Many people left, however, who could have contributed much to Atommash, the plant of the 21st century The collective, in fact, must double its size in the coming years.

[12 Jul 81 p 2: "Atommash. Part 2. All's Well That Ends Well"]

[Text] Atommash delights everyone who sees it. It is a genuine palace of labor: a 16-story building could fit inside completely. Monarchs did not even dream of such a palace. Reigning within it are the true kings of marking, assembly, metal welding and cutting and the crowning with diplomas, certificates and other symbols of distinction. From where did the unplanned turnover of working personnel--1,582 workers in one year--appear at such a plant? Let us pass along the splendid buildings at the end of the shift when, after the labors of state importance, His Highness removes the royal vestments (that is to say, his coveralls) and goes home to rest with his family.

The worker departs the shop. No matter how fine the lathes are, a person gets tired of the tension and the smell of metal. Sometimes, however, the contrasts that await him at his doorstep are not the happiest. Many domiciles--unlike the production buildings--are cramped and ill-suited. It is not at all what was drawn into the design. These, of course, are temporary solutions and temporary inconveniences. Stop! Is not the same thing being repeated over and over again at our new plants?

At first, a construction project develops rapidly. The people work in a truly selfless manner, overcoming any obstacles. When the turning point is finally reached, however, when a real possibility of concluding things with a flair makes itself known, that is the very moment when something jams in the machinery. Some sort of incomprehensible sluggishness sets in, people quickly lose interest in the site and a slump begins. The fact of the matter is that the builders' work is still not being measured by the end result, but by "gross" indicators; material and moral incentives are produced depending upon the amount of "funds utilized." At Atommash, it is no longer necessary to dig large ditches. The amount of labor-intensive finishing operations has increased and the builders' enthusiasm has cooled. They have become interested in projects requiring large cubic amounts of earth and concrete. Obviously, they have found them. They are now developing a number of new sites. At the same time at Atommash, at the plant and in the city, the "underfulfillment" of the subject programs has become the norm.

The construction deadlines for the second phase of Atommash were disrupted last year at the majority of sites. At present, things have been set straight in the first six months of this year. The builders, however, have not extended the plan. Because of this, equipment delivery deadlines have been moved back. This equipment is necessary for outfitting the new atomic power stations. A great quantity of equipment lies about like a dead weight, with no place to install it. It continues to arrive. Even the clients themselves are not always equal to the task. Occasionally the technical documentation comes from them with delays and is of low quality.

Giving what is due to everything that has been done at the site of the Krasnyy Yar farm, we must nevertheless well understand that only half of the plant has in fact been built. Many of the production shops have not been completed. We must still construct the complex control building. Incidentally, this is also the traditional delay which costs us so dearly every time. Common sense dictates that we must first of all create lines of communication, bases and control centers. We are always urged on by the desire to start-up the lathe a little faster--to see how it turns, to report a little louder and then to begin to think why this one stands idle.

The incomplete introduction of facilities leads to a sharp reduction in efficiency. Powerful, expensive equipment operates at one-quarter capacity and the constant malfunctions and idle periods dampen the people's spirits. This is how the labor fluctuation begins.

We will, however, follow the Atommash worker further. He has already gone through the control post. Now he must wait and take by storm the bus which will carry him to the city. Unfortunately, things are much worse here.

That area where the Atommash workers live is a city in name only--essentially, it is only a [illegible]oom, a huge dormitory. Domestic conditions have not been set up. The paradox is that Volgodonsk was a city of only 26,000 inhabitants at the moment construction began on Atommash. It was a city with everything necessary for life, however. Today there are almost 150,000 inhabitants here, and it has become not a city but an accumulation of homes. There are so few social, cultural and domestic establishments that lines stand from morning to night at any "point." Having returned from the fine plant, the worker suddenly begins to feel himself a common beggar.

People understand what an industrial necessity is. When it was required of them, the members of A. Savranskiy's work team did not leave the shop for 10 days. They did not begrudge their personal time to train new personnel nor did they have an overriding concern for money. They carried out their own work with spirit and were always ready to help the builders. However, to waste a heap of time daily on standing in the dismal lines was offensive.

The reader will think: all of this is the result of a fatal miscalculation on the part of the designers or a combination of some extraordinary circumstances. Nothing of the sort! It is simply that the pace of construction of social, cultural and domestic installations lags behind the pace of plant construction by a factor of 3.3. Such is the overall figure. If one were to analyze the situation using specific items, it is entirely possible that Volgodonsk would be a record-setter in its own way. In practice, this means: come home from work, stand in line, a second, a third;

for any little trifle, get in line. Moreover, there are practically no other places for social contact outside of the home in the Atommash workers' city.

Preschool child care is provided for 62.5 percent of the families. About 7,000 children wait their turn to get into the kindergartens. The groups which have been created, however, are two times larger than the norm. Lessons in the schools run in two shifts, but the organizers have not yet managed to set up classes for an extended day. Today, 68.5 percent of the city's children are provided with general education, but the situation will become more acute in the near future. The medical-services situation is also difficult. It is a good thing that the populace is young and that few are sick. What else? There are movie theaters for 10.6 percent of the people.

How did things come to be this way? A rule does indeed exist: for the actual introduction of living space in a housing system, an absolute limit must be determined. During the last five-year plan, unfortunately, the funds appropriated for this item were reduced by tens of millions of rubles. Funds were not set aside at all for facilities for domestic services, culture, trade or food. The construction of a training center, Pioneer camps and an industrial-communal zone has not even begun. We will explain. Under the boring, "nonreportable" heading of "industrial-communal facilities" we mean bases for foodstuffs and other goods, laundry facilities, a shop to manufacture convenience foods, an ice-cream shop with a refrigerator unit, etc.

Calculations show that in order to provide the best services for the city's population, the general contractor must utilize annually no less than 120 to 150 million rubles of construction and installation work. The USSR Minenergo, however, is agreed to only 85 million. This means that the disproportion will not be eliminated. On the contrary, the situation will be aggravated. Atommash and a number of new installations--Energomash, the Rostovskaya AES and others--will be built, but the city will not be able to provide them with working personnel. Mintyazhspetsstroy, Minpishcheprom and other ministries have taken an inactive position on this issue. The firm hand of the USSR Gosplan cannot be felt, either. Maybe they are planning on robots?

Meanwhile, the majority of people had come planning to work for a long time at these enterprises and to live in this city. Some had resettled here for health reasons.

The deputy for the general personnel director P. Ponomarenko related to us a typical Volgodonsk story. Some time ago a highly qualified worker arrived here from the Baltic region, bringing his wife and ailing five-year-old son--pale, anemic, with blue patches under his eyes. The doctor had advised a change in climate. Approximately half a year later Ponomarenko met them on the street. The worker looked refreshed. His face showed confidence, his eyes had lost their expression of alarm. Alongside him jumped and spun a tanned, sturdy little boy. The woman walking with them, however, was unhappy. Her son was now healthy, but she was unable to go to work--it was impossible to get the boy into kindergarten. The school was also crowded, the Pioneer camp had not been set up and there were no plans for one as yet. She had to stand in line for hours. She liked it here, the apartment was fine, but one cannot fill up on Don air alone. Obviously, they would have to move to parts where living conditions were more adequate for a modern man. After two months, the worker, needed at the plant, actually was dismissed and went somewhere in the Ukraine.

The Atommash workers do not ignore the problems of the builders. When there was an acute lack of workers, they apportioned 1,500 people to the construction site. Those remaining were not upset about the additional load, but rather how to utilize the plant workers. There are frequent idle periods there, labor productivity is low and there are many open misunderstandings in the organization. As it is, a worker makes 3 rubles per month at the construction site, while the average wage at his home plant is 200 rubles.

The turnover at the construction site is tremendous. In the first quarter 4,977 individuals arrived while almost 3,000 left. Absenteeism amounts to 7,000 man-days.

True, there are signs that the situation is improving. The housing-construction combine has begun working better. For the first time in recent years, one quarter of the yearly plan for living space was turned over in the first quarter. The semi-annual plan, however, has not been fulfilled. There is still much rush-work and many defective items. Material overexpenditures are allowed in paints by the ton and in wallpaper and facing tiles by the thousands of square meters. In just one trade center 140 doors were replaced. Under conditions of disproportions everywhere and lax control, it is difficult for managers to demand from their subordinates strict observance of labor and production discipline.

The greatest problems are associated with organizing the young people's free time. Taking into consideration the fact that young men and women have no place to go in the evenings, the sale of alcoholic beverages in the city has been sharply curtailed. This measure, however, has not prevented instances of drunkenness.

Of course, not all is gloomy in the daily lives of the Volgodonsk workers. The people somehow or other manage to accomodate themselves to daily life and spare time. They travel out of the city by car and motorcycle on their days off. The surroundings are scenic. In the bay is an entire fleet of motorboats. Three amateur gardens have been created. Three thousand families are confident that in five years there will be a heaven on earth on the present-day worthless salt marshes where nothing has ever grown except thistles. Cherry trees have already bloomed there.

The Tsimlyanskoye reservoir has mitigated the rather harsh local climate. It has provided water for the irrigation system. Fish breeding and fishing are flourishing. A wind rose here as good as any found anywhere else is suitable for sailing. It is possible that All-Russian and maybe even Union regattas will be held here. Yacht and hunting clubs have been built. The clubs accept only those people who will join in the construction work. The plant has its own ensemble and maintains close contact with Leningrad artists.

An additional facility has been formed with great difficulty. Atommash has a special subdivision--an agricultural shop. Since this organization has rights that are, so to speak, semiofficial, it does not expect spare parts, seeds, mixed feeds nor fertilizer. Vitamins and, for example, fish fat for ducks are obtained by the "natural exchange" method. Atommash has its own grain growers whose concern is the forage field. There is a hothouse facility and the fattening ponds of the duck farms. All of this is still in the developmental stage, but the plant cafeterias have already begun receiving meat, cucumbers and tomatoes on a regular basis. Not long ago the Rostov CPSU obkom adopted a resolution in which provisions were made for a number of additional measures for developing the suburban agricultural zone of Volgodonsk.

A plant and a city always comprise a single unit. The plant needs the man to rest well and to come into the shop healthy, cheerful and full of energy. It is important not only to curtail the worker turnover but also to improve the workers' attitudes. There is an important rule: a half-plant and a half-city never provide one half of the planned productivity. At best, they only provide one quarter. Such a mode of operation is very unprofitable. Equipment is expensive and it must be run at a load which will pay it off as soon as possible. Only the total and comprehensive completion of construction on industrial and social installations will finish this work.

9512
CSO: 1822/203

CONSTRUCTION WORK PROCEEDS AT SHAMKHORSKAYA GES

Baku VYSHKA in Russian 15 Jul 81 p 1

[Article by excavator operator K. Safikhanova; concrete workers K. Orudzhev and I. Serbryakov; and L. Sharifov, secretary of the Komsomol committee; "The Shamkhorskaya GES is Under Construction"]

[Text] The Shamkhorskaya GES is one of the first installations slated for commissioning during the 11th Five-Year Plan. Its commissioning was called for in the "Basic Directions for Economic and Social Development of the USSR for 1981-1985 and for the Period to 1990." Over the course of a little more than five years 75.8 million rubles have been appropriated, with 16.5 million planned for appropriation in the current year.

The builders are just ahead of the plan. The semiannual program for the general contract has been fulfilled by 110 percent. Subcontractor organizations have not let us down either. Good work is being done by laborers from sections of Gidrosantekhmontazh, Gidrostroy, Gidrospetsenergomontazh and Soyuzenergozhilstroy.

This success of the hydraulic-plant construction works is all the more gratifying in view of the fact that in June the new construction site sent more than 300 workers and specialists to the Azerbaijan GRES.

The results of these combined efforts were the commissioning of a concrete plant, the completion of work on diverting the Shamkhorchay River and the creation of a spillway and bridge on the Kura river channel.

The basic construction work has been completed on the dam--one of the major installations at the hydroelectric station. On one of its segments, the height of the backfill reaches 124 m. It must be raised another 21 m. Construction of the tidal dam is fully complete.

This construction project has cultivated many highly qualified workers who lead the socialist competition to increase labor productivity and improve the high quality of the work. BelAZ driver Safiyar Mustafayev is working on the first year of the 12th Five-Year Plan. According to the norm, each driver must move 420 tons of gravel per shift, and he delivers 1,000 tons. In doing so, he makes 32 to 35 trips when the norm is 16.

Guseyn Kuliyev, the driver of another BelAZ, competes with Mustafayev. He does not lag behind his competitor, but fulfills his shift assignment by 180 to 200 percent. He was obliged to complete the program for the 11th Five-Year Plan by the 64th anniversary of the Great October.

The competing work teams are moving ahead, working according to the contract method. Among them are the concrete workers of Movsum Movsumov and the carpenters of Musa Guseynov. They are systematically exceeding their assignments by 20 to 30 percent.

9512
CSO: 1822/203

STATUS OF MAKING LIQUID FUEL FROM COAL SUMMARIZED

Moscow STROITEL'NAYA GAZETA in Russian 8 May 81 p 2

[Article by V. Karpov: "Gasoline from Coal--the Long-Term Prospect"]

[Text] /The laying of footings for the first experimental installation for making motor fuel from brown coal of the Moscow Coal Basin has begun in Tul'skaya Oblast at the Bel'kovskaya Underground Mine. [in boldface]/

In order that the coal may become a "moving force" for motor vehicle transport, it is not necessary to create highly complicated engine designs and fantastic filling stations. Scientists of the Fuel Hydrogenation Laboratory of the Institute of Mineral Fuels of the USSR Ministry of Coal Industry propose a simple variant--traditional gasoline but prepared not from petroleum but from brown or black coal.

...Scientists were engaged seriously in treating coal and creating synthetic fuel on the basis thereof back at the start of the 20th century. In order to transform coal into liquid fuel, it is necessary to saturate it with the missing hydrogen atoms, that is, to subject it to hydrogenation.

The chemical process presented rigid requirements, occurring successfully only at high pressures and temperatures. Therefore, even in laboratory tests, the researchers protected their apparatus with powerful steel shields. And that tells about industrial-type installations--the "armor" instantly increased the cost of the synthetic fuel 10-fold. Is it worthwhile to continue the research if it leads into a blind alley?

A few years ago the Fuel Hydrogenation Laboratory of IGI [Institute of Mineral Fuels], under the supervision of Doctor of Engineering Sciences Professor A. Krichko, began a new, bold attack on the road to "coal oil." Only in this case the scientists countered the pressure and temperature not with massive metal barriers but with...chemistry.

At first the work went along the path of negation--known catalysts and additives were rejected. New and effective components which could essentially change the hydrogenation process were studied.

A certain time elapsed and then the representatives of science were transformed into construction workers. On the institute's first floor an enlarged laboratory installation for hydrogenating coal was erected. The ideas born in the laboratory on the second floor took on flesh here below, and were transformed into a reactor, a heater, pumps and control panels.

In another half year so-called commodity output dripped into a carboy for industrial-grade alcohol. It was a colorless liquid, containing all the elements of a motor fuel. From aviation kerosene to gasoline of the most varied grades.

"Brown coal of the Kansk-Achinsk Basin ground to the finest dust is mixed with a pastemaker," Candidate of Engineering Sciences M. Yulin explains the production technology. "From here the feed pumps move the viscous mix, whose form reminds one of toothpaste, over pipelines. It arrives at the heater--see this metal cylinder? Hydrogen is fed from here, and the electric heater is plugged in. The mass, heated to 380-390 degrees, is sent into the reactor. Here, with the participation of catalysts and additives, the process of liquefying the coal occurs. Finally, the culminating moment arrives. The product obtained is separated--its liquid components are collected and distilled. The fractions with boiling temperature below 400 degrees are the desired 'coal oil.' Solid mineral substances left behind as a result of the reaction can be used as power-generating fuel. It is practically a wastefree process."

That is it. Several years of study compressed into a few newspaper lines. But we note that IGI scientists managed to achieve the main thing, about which generations of researchers have dreamed: to reduce severalfold the pressure--now it is 100 atmospheres, and to "cool" the temperature of the reaction and thereby reduce expenditures for the costly protective "armor" of the installation. The hydrogenation process was, finally, placed into the procustean bed of effectiveness and economy.

It is true, the "coal gasoline" is still rather costly. Its petroleum counterpart is one-third to one-fourth as expensive. But, as is known, recovering and shipping oil to customers becomes more costly each year. So--these are strictly scientific estimates--hydrogenation of coal will soon become simply a necessity. Thus, right now we are like witnesses to the birth of a new fuel idol, or, to be more precise--to a rebirth of it.

Analysis has shown that brown coal, especially from the Kansk-Achinsk Basin, is least saturated with mineral "seasoning." This is why only 4 tons of the initial product is enough to obtain one ton of fuel.

"Right now," say the researchers, "the matter is up to the builders. Calculations and pure science have gone to second priority. The main thing is to put theoretical developments quickly into production."

In speaking to the 26th CPSU Congress, Comrade L. I. Brezhnev emphasized especially: "In looking at the long term, the question of producing synthetic fuel from Kansk-Achinsk Basin coal should be studied thoroughly."

The design capacity of the plant at the Bel'kovskaya mine is not great--about 2.5 tons of synthetic fuel per day. But the installation has not been designed for the large-scale consumer. The task of the builders of Mosbassshakhtostroy [Moscow Coal Basin Underground Mine Construction Combine] is to create by 1983 an experimental complex and to perfect each of its components.

Berezovskiy Strip Mine No 1 is receiving the relay-race baton of introducing the valuable innovation from the Bel'kovskaya Underground Mine. Here, directly in the Kansk-Achinsk Basin, construction workers of the All-Union Association SoyuzstroyTEK [All-Union Association for the Construction of Fuel and Power Complexes], considering the experience of their colleagues from Tul'skaya Oblast, should turn over an installation with a capacity of about 20 tons of fuel per day by 1984.

Closed-process cycles are to be established at both the Bel'kovskaya Underground Mine and Berezovskiy Strip Mine No 1. Both installations will produce motor fuel as a final product, but the prospects for developing a new industry also call for a potential for a "semitechnology"--the manufacture of just the "coal oil." Ordinary oil refineries will engage in further refining, using existing processes, as they are freed from "pure" crude oil. Transporting the "coal oil' does not provoke any difficulties. Existing gas and oil pipelines will do for this purpose.

The editorial office requested AN SSSR [USSR Academy of Sciences] Academician N. Emanuel' to comment on the work of the IGI scientists:

"At present, transport, power engineering and the chemical industry are tied in to the strongest degree with hydrocarbon, that is, petroleum, raw material. Its equivalent and full-fledged substitute is an artificial liquid fuel that can be obtained from coal or shale. Actual coal and shale reserves are tens of thousands of times as large as petroleum reserves. And geographically, they have been distributed uniformly. Among the fields--a pearl presented by nature--is the Kansk-Achinsk Basin. If this coal alone were used to satisfy all the USSR's requirements for energy-bearers, then it should suffice for 1,000 years (at the modern level of energy consumption).

"It is not accidental that many of the country's scientific collectives have turned their attention to Krasnoyarsk coal as a source of energy, liquid fuel and gas. Researchers and enginers of the Institute of Mineral Fuels, under the supervision of Doctor of Engineering Sciences Andrey Anatol'yevich Krichko, have gone farther than anyone else along this path. Work is now being done persistently on the problem of artificial liquid fuel throughout the whole world. More than 30 methods for obtaining IZhT [artificial liquid fuel] are now known that have been verified at large industrial-test installations. But even against that background, the process of hydrogenation by the IGI method deserves special attention. Its most speedy verification and study at large-scale installations is extremely necessary. Of course, we are placing great hopes on the builders in this matter."

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CSO: 1822/197

FUELS

SHORTAGE OF GASOLINE AT FUEL PUMPS DISCUSSED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 24 Jun 81 p 2

[Interview with V. Razumov, deputy chairman of RSFSR Goskomnefteprodukt [State Committee for the Supply of Petroleum Product], by S. Ambartsumyan: "Involuntarily Over-Insured"]

[Text] A letter, with commentary.

> "In Novomoskovsk and Uzlovaya, and even in other Tul'skaya Oblast cities, the matter of supplying gasoline to transport is going badly. The gasoline pumps often stand with twisted hoses. It is especially difficult to fill up a private car. Now and then this announcement appears in the window of the AZS [motor-vehicle filling station]: 'There is no A-76 or A-93 gasoline for individual transport, only for official vehicles....'"
>
> Yu. Vasil'yev
> Uzlovaya, Tul'skaya Oblast
>
> Similar messages have come to the editors' offices from other parts of the RSFSR. V. Ivanov from Dyat'kovo, Bryanskaya Oblast, V. Dryagunskov of Nizhniy Tagil, S. Proskurin from Kazan' and others have reported unsatisfactory supply of fuels and lubricants. We asked deputy chairman of RSFSR Goskomnefteprodukt V. Razumov to comment on the reader's letter.

[Answer] This question, let's say it directly, is not simple. We have received similar complaints. We strictly prohibit our workers in the provinces from introducing any kind of restriction whatsoever on supplying car lovers with gasoline. But violations still occur. What's the reason for it? The chiefs of our oblast administrations and the directors of the bulk plants appear to be of dual subordination. Being subordinate to local organs, they are at times compelled to introduce restrictions. It happens, of course, that this measure is actually justified: there is a real threat to the regularity of operation of city transport or of hauling the harvest from the fields. But very often we encounter cases that have no foundation except overcautiousness.

[Question] Could you not cite a specific example?

[Answer] A reprimand was announced comparatively recently by order of the committee against A. Chelmakin, chief of the Chitinskaya Oblast Administration of RSFSR Goskomnefteprodukt, for making an unjustified restriction on fueling private cars. He was also given a pecuniary punishment. Here was just such a case of overcautiousness.

[Question] But the overcautiousness is not just arbitrary, it is caused by uncertainty about an uninterrupted fuel supply, or, let's speak more frankly--the known lack of confidence in the operating precision of our services....

[Answer] You can sell as much gasoline as you have. This simple truth guides our work completely. In this connection, one cannot deny that from time to time the suppliers let us down seriously. Kuybyshev and Ufa suppliers frequently fall short of their commitments for fuel deliveries. And so do the Omsk and Ryazan' oil refineries.

The situation is complicated still more by the fact that in the last 2 or 3 years USSR Gosplan, in allocating funds for fuel, has cut our residuals. For indeed these residuals have been a sort of buffer, cushioning the "blow" during delivery shortfalls. Let's say one of the oil refineries has gone into repair status. Previously, when there were enough fuel reserves at the bulk plants, we succeeded completely in bringing gasoline to this region from other enterprises. Now the fuel reserves at the AZS's have been cut in half, although fuel consumption has grown appreciably. It is natural that interruptions occur in AZS operation.

However, even in this case the problem could be settled painlessly, were it not, to put it mildly, for the unsatisfactory work of rail transport in hauling fuel....

I will cite just one figure. In the second half of the year, because of poor turnover of tank cars from filling points at Omsk, Petropavlovsk, Sokur, Kuybyshev, Volgograd, Saratov, Zeletsyno and Sten'kino, more than 1½ million tons of automotive gasoline were not shipped. As a result, we did not carry out the plan for fuel delivery to Bryanskaya, Tul'skaya, Sverdlovskaya and other oblasts. Incidentally, about the letter received by the editorial board from the city of Kamensk-Ural'sk, Sverdlovskaya Oblast, on which there were 73 signatures. SOTSIALISTICHESKAYA INDUSTRIYA readers wrote indignantly about the fact that for a long time interruptions had been experienced here with gasoline, and for gasoline fill-ups they had had to go 100 kilometers to neighboring Kurganskaya and Chelyabinskaya oblasts, consuming...a sea of gasoline. This is a typical example of the harm that is inflicted on the national economy by unsatisfactory railroad operation.

Last summer in Volgograd, for example, there was a surplus of fuel. But at the same time, in the vicinity--in Rostovskaya Oblast and Stavropol'skiy and Krasnodarskiy krays--it was impossible to fill up a vehicle. And MPS [Ministry of Railways] could not supply tank cars for even such comparatively short hauls.

This should not be allowed this year. We understand that it is necessary to relieve the railroads. There is more convenient and economical transport--oil product pipelines. We are paying special attention to creating a wide network of them. And so that is why Chelyabinskaya and Kurganskaya oblasts are supplied uninterruptedly with fuel, entirely by virtue of pipeline transport.

Now, in order to supply the southern regions better, it is planned to build the Nikol'skoye-Voronezh-Belgorod-Khar'kov arterial pipeline. And during this five-year plan laying of the Sineglazovo-Sverdlovsk petroleum-product pipeline is also to start. It should be said, however, that until now Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] has been carrying out our orders to build petroleum-product pipelines at a truly turtlelike pace. Thus, last year, under a plan for 1,392 kilometers, only 63.3 kilometers were put into operation.

[Question] The time has come for summer vacations, and with it large-scale car tourism. M. Gorodnichev from Shchekino, N. Romanov from Kursk and others ask, what is being done to improve service at the AZS's. Will their numbers be increased, or will fill-ups be guaranteed?

[Answer] We have taken steps to create a fuel reserve at the bulk plants that will cover the "hot" period. The importation of petroleum product into the oblasts and autonomous republics that were named in the letters has now improved, and gasoline is being sold to the owners of individual transport without restriction.

In order to improve service to car lovers within the RSFSR, 120 special motor-vehicle filling stations have been singled out at which petroleum products will be sold for cash, and also more than 3,000 fuel-dispensing pumps at other AZS's for filling up individually owned motor vehicles for market-allocation coupons.

We are paying constant attention to modernization and expansion of motor-vehicle filling stations. Each year 75-80 are being rebuilt, and 140-150 new AZS's are being built. All this is being done in order to service car lovers quickly and without interruption.

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CSO: 1822/197

COAL-MINE PERFORMANCE CRITERIA PROTESTED AS UNFAIR

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 26 Jun 81 p 2

[Article by A. Akimov, brigade leader of a through-process integrated brigade of breakage-face mineworkers of Velikomostovskaya Underground Mine No 8 and Hero of Socialist Labor (Chervonograd, L'vovskaya Oblast): "And Still--the Percent or the Ton?"]

> [Text] Returning to what was printed before. Apropos the reply of Deputy UkSSR Ministry of Coal Industry A. Manzhula.

My article dedicated to searches for and the use of reserves in the coal industry was published under the standing headline, "The Workers' Forum," in SOTSIALISTICHESKAYA INDUSTRIYA of 30 October last year. The article was headlined, "The Ton and the Percent," and that was what it was about.

Deficiencies in planning and the thoughtless use of funds for economic and morale incentives at times end up in the leaders of socialist competition not being those collectives that mine the most coal and show the highest pace of labor productivity growth but those that have a percent "that compares favorably."

And so I undertook to try to come out against percentomania, and I was, naturally, extremely interested in how the Ministry of Coal Industry of the Ukraine would react to my article. Alas, I was counting so much on an official answer of the ministry, signed by you, Comrade Manzhula, and I have not observed any reaction of the republic's Minugleprom [Ministry of Coal Industry] on this subject. At the same time, it was explained to the editors and the author that "the wage of workers at underground coal mines is closely dependent upon the level of fulfillment of plans and tasks for quantity of production" and that "equal pay is provided within the collectives of brigades that are operating under similar conditions and have equal indicators."

It must be confessed that I cannot be content with such an explanation. Actually, the wage depends upon the fulfillment of plans and tasks as to the amounts of production. But what kind of plans are these? Are they always substantiated? Do they actually consider "similar conditions"? What are those scientific criteria by means of which the workload in the plan is determined? I would like to get answers to these questions! And there is no kind of assurance that such answers are, as is said, "at the tip of the tongue" of the ministry's workers.

Unfortunately, in the matter of planning, there are still many subjective factors. In some cases plans are made on the basis of "what has been achieved," in other cases "trusting" that reserves have been depleted, and in a third case the director's personality is moved into the foreground (he who was bold ate two), and so on. But somehow I do not recall, during the defense of plan tasks in Ukrzapadugol' [Western Ukraine Coal Mining Association], any of the directors asking that this very task be increased for him. On the contrary, a constant, steady struggle is waged to conceal reserves, to get plans reduced. Why? Because the percent of task fulfillment is based upon this, if the task is strenuous! And once there is no required percent, then there is nowhere to expect large bonuses, and you will not beat out the advanced workers.

And now a few words about "similar conditions." Before looking into this question, I would ask you, Comrade Deputy Minister, to take the data and then look primarily at what the seam thickness is at the various longwalls and at various underground mines, even of our L'vov-Volyn Basin. Then it is also possible to study another indicator--the workload on the longwall. According to the logic of things, the workload per longwall should be less where the seam is thinner, and, on the contrary, higher where it is thicker. Given equal geological conditions, length of the longwall, and so on.

But this logic itself somehow at times is lacking in real life. It happens that brigades that are working on seams of slight thickness produce not less but more coal. Their working conditions are more complicated, the intensiveness is higher, But the incentive, alas, is standard. So it is almost impossible to crash the ranks of the leaders. While the happy ones are those with the thick seams. I will break this thought down in two examples.

Two brigades have identical plans of 1,200 tons each. But one of the brigades is working at a longwall with a seam 1.2 meters thick, the second at one 1.8 meters thick. They each mine 1,300 tons of coal, and it is considered that they are working well, that they stand in a single rank, according to the incentive-type indicators. But indeed the labor expenditure of the first brigade is higher!

Or this example. Two brigades mine 500,000 tons of coal each per year. But one of them has an annual plan of 490,000 tons, the second 450,000 tons. Thus the first carries out the plan by 102 percent, the second by 112 percent, although it works much worse.

I am asked, where do you get these examples? From life. We have more than enough of them in the basin. Let not the miners of Velikomostovskaya Underground Mine No 3 think that I want to reproach them for remissness and to praise our own brigade, but, since the discussion is going on openly, I will cite here some comparative data for last year. In our brigade at Velikomostovskaya Mine No 8, the workload per longwall was 1,133 tons; the seam is 0.9 meter thick, the longwall mining machine is the KMK-97, and the percent of plan fulfillment is 105.8. In V. Rybinskiy's brigade at Velikomostovskaya Mine No 3, the workload per longwall is 1,363 tons, the seam is twice as thick--1.8 meters, the longwall mining machine there is the KM-87, and the plan was fulfilled 112.8 percent....

Pardon the fact that I cite so many figures But I can't do without them if I wish to explain the truth....

And these figures testify that the basis of planning for mining is laid not on objective criteria but on libertarianism of the first water. To a miner everything is clear here, but for the uninitiated reader I will add just one thing: the issue is the fact that he who has the thicker seam and the more powerful equipment has the more modest plan. And it is not necessary to do battle for tons if such a beautiful percent gladdens the soul!

Many more examples could be cited, but in the various versions they all say one thing: the previous approach to planning the workload per longwall and to summing up the results of socialist competition among mining brigades is obsolete. A different approach, a differentiated one is needed.

"Labor productivity of the breakage-face mineworkers," says your answer, Comrade Manzhula, "depends to a great extent upon the mining-geology conditions of the mine face, on which the mining brigade can exert no influence." A correct thought, you will not go against mother nature and it is not worthwhile to do so. But it is possible to differentiate these mining-geology conditions.

I propose, for example, to break all longwalls down into groups by thickness of the seams being worked. The first group would include mine faces with seam thicknesses of 0.5 to 0.7 meter, the second group those of 0.71-1.0 meter, the third group--1.01-1.2 meters, and so on. It is also necessary to break down the equipment used into groups: individual supports, individual supports with the Sputnik, KMK-97 supports (first type), KMK-97 supports (second type), and KM-87 supports (the first type), and so on.

And so now it is possible to establish standard workloads as a function of the thickness of the seams and the power of the equipment used, approximately like this scheme:

Thickness of the seam	Equipment	Workload
0.71-1.0 m	Sputnik	500 tons
0.71-1.0 m	KMK-97	700 tons
1.01-1.2 m	Sputnik	600 tons
1.01-1.2 m	KMK-97	900 tons, and so on

Such an approach to the matter will help greatly to increase the number of tons of fuel sent to the surface and to reduce to zero the inflated percents, which no one needs.

"...It is impossible to concur with the author's statement," you write, Comrade Manzhula, "that the only correct evaluation criterion for the wage should be the amount of coal mined per worker." But the author cannot concur with the statement of the deputy minister. For, as we see, we are not talking about an absolute number of tons mined per worker (in no way will we overtake the miners of the Kuzbass or Neryungri, who work at seams of multimeter thickness), but precisely about differentiated standards.

I am confident that the solution of the questions I have raised will help to untie not only economic but also certain moral knots: socialist competition will become more effective and the number of advanced producers "on paper" will be reduced by far. And there is as much harm from "paper" producers as from poor work.

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CSO: 1822/210

CURRENT WORK ON TYUMEN' PIPELINE CONSTRUCTION GOING WELL

Moscow STROITEL'NAYA GAZETA in Russian 3 Jul 81 p 2

[Interview with A. Chernikov, chief of Glavsibtruboprovodstroy, by V. Savostin: "Every Day"]

> [Text] The aim of the competition of the builders of Tyumenskaya Oblast's oil and gas pipelines is to enable 1 million tons of crude oil and 1 billion cubic meters of gas to be recovered daily.

The Glavsibtruboprovodstroy [Main Administration for Pipeline Construction in Siberia] collective was awarded the Order of Lenin for carrying out 10th Five-Year Plan tasks on erecting facilities for oil and gas complexes in West Siberia ahead of time. And how did it finish the new season on the route? A. Chernikov, chief engineer of the main administration, tells our guest correspondent V. Savostin:

"The Tyumen' pipeline-route workers fulfilled their tasks and commitments. During the pipelaying season more than 3½ thousand kilometers of oil and gas trunk lines were laid, 800 kilometers more than in the preceding season. More than 1,200 kilometers of the underground arteries have already been turned over for operation, almost two-thirds of them ahead of schedule.

"The collectives in the region's north toiled especially successfully. They attained a pace that enabled them to lay seven underground arterials from the Urengoy gas-condensate field to the country's central region during the new five-year plan. Right now we are concentrating efforts on erecting the huge Urengoy-Petrovsk gas pipeline. Four hundred and fifty kilometers of the strand have already been laid here. This will create a good base for fulfilling the year's commitments.

"The success of the past season on the route was achieved thanks primarily to timely preparation for work on the line. The collectives of earthmoving and road construction administrations cleared openings during the summer and fall over a broad front and built log roads to open up the way for the erecting columns. This helped to extend the usual limits of the season. They began it 20 days sooner, despite the protracted autumn.

"V. Madenov's insulating brigade set a new industry record, laying 163 kilometers of trunk pipeline in the ditch. And the column of V. Volkov showed the highest daily output--5 kilometers. N. Minayev's brigade brought the productivity of the Sever-1 installation up to 35-40 joints per shift.

"The method of ballasting the pipeline with hinged anchors that the main administration's specialists developed was applied on a major scale. About 6,000 pairs of these anchors have now been installed, double the number of the preceding season. Severtruboprovodstroy [Northern Pipeline Construction Trust] introduced a new method for freezing crossings over rivers which extended by far the service life of the winter roads. For the first time in domestic pipeline-construction practice, the erection of high-head arteries for gaslift operation of wells was started, raising the output of the oil formations.

"Ahead is new business. Four of the seven gas arterials are to be laid in an undeveloped 'corridor.' The amounts of work on building up facilities of the Urengoy field will grow sharply."

11409
CSO: 1822/197

OIL-WELL DRILLERS NOT RECEIVING FULL SUPPORT AT NEBIT-DAG

Ashkhabad TURKMENSKAYA ISKRA in Russian 23 Jul 81 p 2

[Article by O. Kirova: "Put Wells on a Flow Line"]

[Text] The collective of the advanced Nebit-Dag Drilling Association completed its task on hole penetration for the first half of the year 3 months ahead of schedule. Right now the enterprise has to its credit more than 3,000 meters of rock drilled through above the plan. On the average, every third well here has been erected ahead of the originally planned schedule. The administration's success is remarkable and meaningful because the plan for penetration for both exploration and development holes was not fulfilled by Turkmenneft' [Turkmen Oil Recovery Association] as a whole.

Well then, did the advanced workers have a reduced plan or easier working conditions? The plan, as set, was strenuous and it has grown substantially for the 11th Five-Year Plan. And Barsa-Gel'mes--the main area that the Nebit-Dag administration is drilling over--is not noted for a mild disposition, and the ground conceals no few difficulties. The administration is conducting exploration also at new structures--Kara-Tepe, Monzhukly, Burun and Kum-Dag. Deep horizons are to be opened up at Syrt-Landy.

The holes that are reaching the underlying sediments require increased attention. A study of these deep depositional formations was started in Turkmenia comparatively recently. Adjustments were introduced into the work, and the data obtained is being studied.

The Nebit-Dag administration has been charged with drilling a number of especially important appraisal holes, for example No 25, where one of the association's best brigades, under Yu. Mesropyan, is toiling. The whole cycle of operations here is being conducted in precise accordance with the design. This has been done thanks to the attentiveness of the engineers and technicians and to the fact that they have been furnished the most modern means for drilling that are at the administration's disposal.

And even ordinary wells have become much more complex: their depth has increased, and the call for an increase in output requires switching them to the gaslift system. In brief, whatever the well, it has its capriciousness and no few difficulties to overcome, requiring special nonstandard technical approaches and measures. Senior geologist of Turkmenneft' A. Ibragimov half-jokingly and half seriously proposed even to name the Nebit-Dag UBR [Drilling Administration] a superdeep drilling enterprise. It was this also that Ye. Belichenko, the administration's chiefe engineer, implied when he talked about D. Nurutdinov's method, "Put oil wells on a flow line."

"The initiative is remarkable. It is regrettable only that our conditions are too complicated for flow-line construction of oil wells."

In fact, flow-line production is the process under which all operations are uninterrupted, standardized and uniform and require a minimum of time expenditure. The output of finished product also is thereby increased. In the West Turkmenia environment, drilling is reminiscent more of the work of experts, each of whom carries out a complex order that requires an individual approach.

But a reduction in the wells' construction cycle is also possible under these conditions. The experience of the Nebit-Dag Drilling Administration is a convincing example of this. Its collective was one of the first in Turkmenia to support the initiative of the Al'met'yevskers, "Put wells on a flow line." For a start, several drilling brigades concluded agreements for socialist competition with their directly related organizations. In July of last year, an expanded session of the drilling committee of the administration's trade union discussed the article, "Put Wells on a Flow Line," which was published in TURKMENSKAYA. Not only all 19 brigades of the administration but also the enterprise as a whole, with the derrick-erecting office, the NGDU [Oil and Gas Recovery Administration] of Nebit-Dagneft' [Nebit-Dag Oil Recovery Association], the water-supply office, the transport workers, the Administration for Technical Supply and Outfitting and others, cemented their relations with mutual agreements with interdependent organizations. The purpose of this competition was to raise productivity during drilling, derrick construction and the testing of wells and to support the whole construction process with supply and equipment resources, transport means, lifting machinery, an increase in net drilling speed, and achievement of the most penetration per year by any drilling brigade. And, as a result, the cycle of the construction of oil and gas wells was shortened.

It can already be said with confidence that the competition has now given positive results. Net drilling speed exceeds that planned by almost 114 percent. And this is one of the main indicators that characterize successful activity of a drillinge enterprise. This year the construction cycle for production wells has been reduced by 24 days in the administration.

Party and trade-union organizations are constantly and attentively following up on progress in the socialist competition. In summing up its results and awarding incentives to advanced workers, the fulfillment of mutual contractual commitments by interdependent workers is considered. The successes and shortcomings of the competition are discussed at party committee sessions, open party meetings, and trade-union committee sessions. The wall press actively and effectively publicizes its progress.

After visiting the Nebit-Dag Drilling Administration, the drilling brigades, studies in the party's training network, and the technical services and sections, I was convinced each time that the competition here has not been organized formalistically. It is a live, creative matter, and an absolute majority of the collective's members are taking part in it.

The advanced brigades under E. Tsayem, V. Goloveshkin, A. Nosov and A. Zinatulin constantly seek reserves for introducing new equipment and assimilating progressive work methods. In brief, they are working at what is called high tension. This also enables them to achieve constantly, from month to month, over many years, the best results in the administration. There are a number of such brigades, which are stable and have a strong inner consciousness of discipline in the administration. It is gratifying that even those who were still content yesterday with average results are among the leaders who are moving out confidently.

One must not understand the competition just in simplified fashion: the brigade concluded an agreement, it was burning with a desire to work, and, perhaps, it learned from successes. But if you do not give the drilling brigade, say, a reserve of bits, will the brigade then be able to achieve success? In drilling it is impossible to replace idle time. That is why it is important to establish for the competitors not simply equal but even the most favorable conditions. In other words, to provide the drillers with all the necessary technical means. Then they will be competing in vocational skills, and well construction will approach flowline style.

How are the drillers being supplied? Let's begin with the drilling brigade's closest interdependent workers--the base for production services for the administration.

A favorite expression of this base's supervisor, V. Vorona, is, "It can be done." Repair a part? It can be done. Replace a component? It can be done. Make a delivery to a drilling brigade? It can be done. But the base's workmen, technicians and engineers have to contribute so much work to satisfy the drilling brigades' orders more completely and better. Increasingly fewer new spare parts for the equipment are arriving, and the need for them is growing, especially now, when the wells have become more complicated and require especially precise technical support. Thus, what previously had been turned in for scrap now has to be restored. And this has required the creation of an in-house materials and equipment base for the restoration and repair of parts and of whole units.

It is good that Turkmenneftestroy [Turkmen Trust for the Construction of Oil Industry Enterprises] workers could help. They leveled the site for this unplanned facility and assembled a metal "block," lighted and spacious, where in time a mechanical workshop was sited. And the base's workers are now making it habitable and are building up the facilities: they have installed shelving for equipment, a gantry crane and two rotary cranes, and they are erecting buildings from members that have a high degree of factory preparation--metal and reinforced-concrete structure. And all by their own efforts.

"Much was done during the free-Saturday work period by student detachment forces," says chief mechanical engineer of the administration V. Sokolets. "The workers of our electrical shop installed the whole electrical part. Even the drilling brigades helped voluntarily. For they know that the base is being rebuilt to improve their work."

A department for blowout preventers and other equipment is already in operation here now. The people's work has been facilitated: there are lifting mechanisms, mechanical dollies, machine tools and attachments. There will be sections here for the repair of power facilities, internal combustion engines, small-scale mechanization equipment and drilling tools, a personal-amenities facility, and a dining room. Much equipment has been brought in. The base is confidently creating a strong foundation for a supply and equipment base for the drillers.

But it also needs help. The base's workers are not in a position themselves to furnish a boilerhouse and to complete the construction of a building for the machinery-repair shop that Turkmenneftestroy started.

The material and equipment base for drilling and gas recovery in Turkmenneft' is being created too slowly and with great delay. Construction of the Central Pipe Base, a base for the 14 operating drilling brigades in Okarem, and a base for repair services for the Koturdepe and Kuydzhik drilling administrations is being delayed. Yet it is these enterprises that should provide support for flowline construction of wells and supply drilling brigades uninterruptedly with all the necessary technical means.

Any new beginning needs time for the introduction and the creation of conditions for the most effective use of it. And the initiative of the Al'met'yevsk Drilling Administration is no exception. However, the period of introduction must not be like a trampling in one place. Five years have passed since the Turkmenneft' drilling brigades took up D. Nurutdinov's initiative. But the matter of concluding agreements with interdependent agencies is not proceeding further. And if the interdependent agencies of the drilling brigades within one administration still somehow answer for the fulfillment of agreed commitments, then the partners who are subordinated directly to the association will bear no kind of responsibility for the document that they themselves have signed. No one asks them to violate contractual commitments, but no one encourages introduction of the initiative.

In the association the terms for competing under the motto, "Put wells on a flow line," are still only being developed. The work of the services that support the drillers is judged by quantitative indicators. And these indicators do not always correspond to the essence of the matter. Here is an example. The derrick-erecting office, at the insistence of the Nebit-Dag UBR, its partner in competition, accelerated erection of the drill rigs. However, the quality remained low. The erectors themselves are eliminating 20 deficiencies, but after them the drillers themselves will make final adjustments to the equipment. The derrick-erecting office has an extremely poor materials base, so drill-rig components have to be repaired not prior to erection but during well-drilling. The cycle of their construction is thereby prolonged. For more than 300 days Nebit-Dag UBR drilling brigades have been waiting for finished rigs. In other words, two brigades have not been participating in the drilling process this year. The drillers suffer also for the sins of other interdependent agencies, who always find objective reasons for justification.

It must be noted that the initiative of the Al'met'yevskers find more support "from below" in Turkmenneft', from drilling brigades and well-repair brigades, then "from above," from the competition organizers and sections of the association.

In the morning when we left for Barsa-Gel'mes, and in the evening upon return, I paid attention to a fountain that had been pouring from a water pipe.

"It has been leaking for several days," V. Sokolets noted with bitterness. "Somewhere there is not enough water for drilling, for pumping into the formation and for other needs, but here on the road a river that no one needs is being formed. A production reserve, it can be said, is right under our feet."

I managed to observe the discomfort of workers of the engineering and industrial services of the Nebit-Dag UBR who had had to get to a drill rig on time but there was no vehicle. A vehicle assigned to them had left the garage malfunctioning, and soon it went completely out of order. And such cases are a phenomenon of a daily occurrence. In the Nebit-Dag UBR alone idle time because of a lack of motor transport, water or electricity is in triple digits. This time is stolen from the production process. And it is hardly necessary to seek out justification for it. Something else must be sought out: ways to improve the work of all the organizations upon which drilling of the wells depends. Only then will it be possible for it to approach flow-line operation.

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MINISTER OF GAS INDUSTRY OUTLINES TASKS, PROBLEMS OF NEXT 5 YEARS

Moscow SOVETSKAYA ROSSIYA in Russian 1 Aug 81 pp 1-2

[Article by V. Dinkov, USSR Minister of Gas Industry: "An Element of the Energy Program"; passages enclosed in slantlines printed in boldface and underlined]

[Text] Natural gas has become a powerful factor in speeding up technical progress and the pace of the national economy's development. Nowadays 93 percent of the steel and pig iron, 60 percent of the cement and 95 percent of the mineral fertilizer are processed with the use of this high-quality energy bearer and valuable chemical raw material. About 200 million Soviet people are using gas. Last year All-Union gas recovery exceeded 435 billion cubic meters, which is more than twice the amount recovered 10 years ago. This high pace was achieved by accelerated assimilation of the fields of West Siberia, Turkmenia and Orenburgskaya Oblast and by the purposeful labor of gas-field workers, the builders of oil and gas industry enterprises, the installers and power-engineering workers.

The decisions of the 26th CPSU Congress assigned our industry new tasks that are more complex and greater in scale. /In 1985, as recorded in the "Main Directions" for the development of the national economy, 600-640 billion cubic meters of gas are to be recovered./ More than half of the planned amount is to be obtained in West Siberia. The main fields of this region, which are located thousands of kilometers from the main centers of consumption, experience severe natural and climatic conditions that are, without exaggeration, unique. They are capable of meeting reliably for many years the growing demands of the socialist economy. In speaking at the 26th party congress, Comrade L. I. Brezhnev noted: "The recovery of West Siberia's gas and oil and the transport thereof to the European part of the country are to be made most important elements of the economic program for the 11th, and also the 12th, five-year plans."

The state is calling for enormous capital investment to carry out the integrated special program of further developing the industry that Mingazprom [Ministry of the Gas Industry] has worked out. It will be more than double that of the last five-year plan. It is important now that each ruble spent yield maximum return. The ministry's managerial and economic activity are subordinated to this purpose today.

It was at first proposed that the required increase in gas recovery in West Siberia be obtained through the simultaneous assimilation of the two largest fields--the Urengoy and the Yamburg. However, a feasibility analysis that was performed indicated that the construction capacity and the supplies and equipment must be concentrated primarily at the Urengoy field. The contemplated growth in gas recovery can be provided for completely there. It was estimated that by the end of the five-year plan it will be able to come almost up to the design capacity of 250 billion cubic meters per year. The job is facilitated by the fact that already there exist here construction and installing organization capacity, a materials and equipment base, and labor resources. In the final analysis, a concentration of forces in this region will help to save more than 1 billion rubles of capital investment. In order to provide for reliability and responsive management in the recovery and transport of Tyumen' gas, we completed, jointly with Minpribor [Ministry of Instrumentmaking, Automation Equipment and Control Systems] preparations for specific programs for creating automated control systems for the West Siberian complex. Let us begin with the Urengoy field. As for Yamburg, preparatory operations will be conducted there.

Drilling enterprise collectives face very important tasks. They are to drill at the Urengoy field more than a thousand production wells, all the work being done at an outstripping pace. By the time construction of the integrated gas-treatment installations are completed we should have the necessary inventory of wells at the field. In order that the planned taking of 330-370 billion cubic meters of gas from West Siberia's ground in the concluding year of the five-year plan may become a reality, Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] contracting organizations must turn over 15 new integrated gas treatment installations (with a total annual capacity of 215 billion cubic meters) for operation by the planned deadlines. Four of them--with a unit capacity of 15 billion cubic meters each--should be started up this year. /In order to deliver Siberia's gas to the country's central and western regions, 6 trunk pipelines (made of 1,420-mm diameter pipe) totaling more than 19,000 kilometers in length, with 174 compressor stations, are to be built and introduced into operation./

Decisions aimed at the accelerated erection primarily of these gas lines, which are important for our industry, were adopted recently. We hope that the necessary trunk gas pipeline systems will be introduced into operation within a short time by the overall efforts of Minneftegazstroy, USSR Minpromstroy [Ministry of Industrial Construction], USSR Minstroy [Ministry of Construction], Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises], USSR Minenergo [Ministry of Power and Electrification], Minenergomash [Ministry of Power Machine Building], Minkhimmash [Ministry of Chemical and Petroleum Machine Building], Minsudprom [Ministry of Shipbuilding Industry], Minpribor and other subcontracting ministries, and also that the national economy's requirements for reliable and highly productive transfer-pumping units will be met. This will enable our enterprises to build up gas recovery during the 11th Five-Year Plan at an assured pace.

In concentrating our efforts on the boosted development of the Urengoy field, we will also speed up assimilation of the Karacnaganak field in Kazakhstan and the Sovetabad field in Turkmenia at an accelerated pace. We shall organize a huge complex for the recovery and treatment of gas and condensate at the Astrakhan' field's base. The Mubarek and Shurtan complexes in Uzbekistan will be enlarged. A task of great national economic importance is further assimilation of the country's oil and gas resources on the continental shelf.

The industry's development depends to a decisive extent upon undergoing reequipment. We note with deep gratitude the help extended to us by the machinebuilders. Among them the Nevskiy Zavod imeni V. I. Lenin Production Association, the Khabarovsk Power Machinebuilding Plant, the Turbomotornyy Zavod Association imeni K. Ye.

Voroshilov of Minenergomash, the Sumy Machinebuilding Association imeni M. V. Frunze of Minkhimmash, and others can be noted. Their contribution to the successful fulfillment of tasks for recovering and transporting gas during the 10th Five-Year Plan were meaningful. /We are expecting from our main supplier--Minenergomash--the accelerated delivery of compressor stations with new transfer-pumping units of increased unitary capacity (16,000 and 25,000 kilowatts) and also of completely assembled injection pumps of 10,000-kilowatt capacity./ Our enterprises are experiencing a dire need for unified systems for automatic control, air-cooling equipment and large-diameter shut-off fixtures for trunk pipelines.

It stands to reason that gas-field facilities and the trunk gas pipelines should be erected in unison, with the simultaneous introduction into operation of a centralized power supply and the construction of roads, a repair base, housing, and facilities for social, cultural and personal-amenity purposes. In former years, unfortunately, the lack of just such an integrated approach was telling on the pace of the assimilation of new recovery regions, and it complicated operation of the wells and the trunk gas pipelines.

In West Siberia one of the most severe problems is the lack of roads, primarily within the gas fields and along the pipeline routes. The Ministry of Transport Construction laid 150 kilometers of roads here during the last five-year plan, 66.7 kilometers of them last year. As for the roads along the pipeline routes, there are none at all over thousand-kilometer distances of many gas pipelines. Winter roads are being used willy-nilly during the period for delivering the equipment and materials that the builders and operators need. Helicopters are lending a helping hand. But their use, in the first place, is very expensive, and, second, it depends almost entirely upon the caprices of the weather. Under these circumstances, both our ministry and Mintransstroy [Ministry of Transport Construction] should build up construction capacity in a short time and speed up the pace of laying roads.

The potential of river transport--the cheapest form of transport--is being used poorly. During the last five-year plan not one of the tens of large docks that had been planned were built in this region. At the Sergino port, for instance, the erection of a mechanized dock is already in its seventh year, and the end is not in sight.

And the problems of creating a reliable power supply are just as severe for us. Today facilities for the recovery and transport of gas are getting electricity from, as a rule, autonomous power plants, a large portion of which operate on imported fuel. While their power is small, they nevertheless tie up about 3,000 servicing personnel, which, given the general shortage of labor resources, is wasteful. Moreover, the small power installations are simply uneconomical. At an autonomous power plant the prime cost of 1 kilowatt-hour is about 8-fold that at a Tyumenenergo [Tyumen' Regional Power Administration] GRES. Moreover, fuel consumption is twice as much in the first case. Because of a deficit of power at the Urengoy field, highly productive rigs that work on electric drive stand idle. The drillers are forced to use diesels.

/With the introduction into operation of the LEP-500 [500-kilovolt power transmission line] from the Surgutskaya GRES to the Urengoy field and of the first unit of the Urengoy GRES, it will be possible to eliminate the power shortage at the North's fields completely./

When I speak about an integrated approach to solving the various problems associated with developing the gas fields, I have in mind not just the technical aspects but also the social and personal-amenity aspects. Experience proved long ago that it is impossible to arrange for stable production without highly qualified specialists. It is not always possible to get them for our enterprises, which are, as a rule, remote from communities. The reason? The housing shortage.

During the past 3 years the contracting construction organizations should have turned over to Siberia's gas-field workers 300,000 square meters of housing. However, because of the shortage of production capacity, 180,000 were actually introduced. Matters do not go well either with the erection of kindergartens and nurseries, general-education schools and other social, cultural and personal-amenity facilities. Our base cities--Nadym and Novyy Urengoy--are being developed slowly.

We are placing great hopes on help from construction organizations of the Ukraine, Belorussia, Latvia, Estonia, and the cities of Moscow and Leningrad, which have undertaken a patriotic initiative to carry out a large amount of civic construction for West Siberia's gas-field workers. In the next 3 years here 760,000 square meters of housing should be turned over for operation, and several general-education schools, for 4,500 students, preschool institutions for almost 3,000 children, and hospitals should be built....

It was stated at the 26th party congress that a simple and very prosaic matter--a proprietary attitude toward public property, skill in using purposefully everything that we have--is becoming the core of economic policy. /Natural gas is nonrenewable national wealth./ It is gratifying, for example, that such enterprises as the Magnitogorsk Metallurgical Combine, Severodonetsk's production association Azot, the Cherepovets and Donets metallurgical plants and the Tashkent Cotton Combine use this natural wealth rationally.

The results of 14,000 inquiries at industrial enterprises that were conducted in recent years by Gosgaznadzor [State Gas Inspectorate] organs indicated that nonproductive gas consumption in some cases reaches 8 percent of the total annual consumption by an industry. Many enterprises operate available equipment unsatisfactorily, systematically violate consumption discipline, do not conduct tuning-up regimes of operation, and do not have instruments to record the gas consumed in generating heat....

The wide use of secondary energy resources, particularly heat, is a major reserve for savings.

Utilization of the heat just of combustion products at compressor stations would help to save 6 billion cubic meters of gas each year. Hothouse combines, livestock complexes and poultry factories erected close to our arterial pipelines can be potential users of the heat. This problem will be resolved by the joint efforts of the USSR Ministry of Agriculture and our industry within the framework of a special integrated program already developed. Experience in creating subsidiary activities has already been gained at enterprises of the Saratovtransgaz, Uraltransgaz, Tyumentransgaz and other pipeline associations.

The recently adopted CPSU Central Committee and USSR Council of Ministers decree, "On Intensification of the Work to Save and Make Rational Use of Raw Materials, Fuel and Power Materials, and Other Material Resources," aims at making production results grow more rapidly than expenditures therefor, so that the production of output with fewer resources will increase, at using resource-saving and energy-saving technologies, and at using production waste more widely.

Right now intense preparation by all our industry's production elements for the work of the forthcoming fall-and-winter period is going on. The program for repair and preventive maintenance is being carried out at operating facilities, and obsolete and worn equipment is being replaced by equipment that is more economical and productive.

Industrial consumers should also revise and adjust their equipment and accumulate fuel reserves in good time. Housing and municipal-services activities should be preparing now for operation of gas systems under winter conditions.

* * *

The industry's collectives are working with enthusiasm during the first year of the 11th Five-Year Plan. Socialist commitments adopted in honor of the 26th party congress have been carried out successfully. During the first half of the year Mingazprom enterprises produced more than 4 billion cubic meters of gas and 122,000 tons of crude and condensate above the plan. These achievements are inspiring assurance that the 11th Five-Year Plan tasks set for the gas industry will be carried out successfully.

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FUELS

BRIEFS

TYUMEN' DRILLING INCREASES--Tyumen', 6 Jul--Oil recovery at the Tyumen' energy complex is being increased. Today the 5-millionth meter of oil-well drilling since the start of the year was performed here. The pick-up in penetration speed is an important contribution by the drillers to solving the task set by the 26th CPSU Congress to increase oil recovery. The Siberians are now sinking up to 15 wells each day toward productive deposits. In order to carry out such an enormous amount of operations last year, 1.5-fold more time was required. Large-scale updating of drilling equipment has been shown. Ural and Volgograd enterprises have mastered the output of rigs of increased capacity, and experience acquired in mastering West Siberian fields that are difficult of access was used in creating them. The skill of the penetrators of the depths has become higher by far: the constant dissemination of the advanced methods and work procedures of the best brigades has helped. Schools of advanced experience have been established on the basis of whole administrations. And the interdependent workers--the derrick erectors--have not let the drillers down. It has been decided not just to maintain the strenuous pace of operations but to increase it. This will help Glavtyumenneftegaz [Main Administration for the Oil and Gas Industry in Tyumenskaya Oblast] oilfield workers to recover 2 million tons of oil above the plan this year. (TASS) [Text] [Moscow PRAVDA in Russian 7 Jul 81 p 1] 11409

BASHKIRIA OILFIELD AUTOMATION--Ufa. The integrated automation of Krasnokholmskneft', the last and the sixth consecutive oilfield administration in a row in Bashkiria, has been completed. Automated equipment is in operation today in all oil regions of the autonomous republic. The operation of 13,000 wells is monitored and managed by centralized services by means of instruments. This has enabled labor expenditures to be cut and the operating reliability of the huge well inventory to be raised sharply. Suffice it to say that during the past 10 years the number of wells in Bashkiria has doubled but manning by servicing personnel has remained the same. (R. Bikmukhametov) [Text] [Moscow IZVESTIYA in Russian 27 Jun 81 p 3] 11409

NEW KAZAKHSTAN OIL HORIZON--Aktyubinskaya Oblast--A high-capacity oil and gas gusher struck from the earth when drilling foreman Zh. Aubakirov's brigade reached the 3,800-meter mark. Deep drilling at the Zhanazhol field, which was discovered more than 2 years ago, thereby confirmed the geologists' forecasts that a second oil-bearing horizon existed here. This predetermines the development of prospecting not only in Zhanazol but also in vast areas adjacent to it. The explorers are now finishing the penetration of a second deep well, which will enable the outlines of the extent of the presence of oil and gas in the second horizon and the reserves of the valuable raw material concealed in it to be established. The geologists also continue to drill holes to still lower horizons which, according to their calculations, should exist at the field. The drillers are achieving the highest results in developing the competition that was started in honor of the 26th CPSU Congress, and they are doing everything possible to carry out successfully not only the goals of the year but also the five-year period as a whole. (G. Alekseyev) [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 5 Jun 81 p 1] 11409

NEW OIL RIG PRODUCTION--Sverdlovsk, 10 Jul--A rig for drilling wells to 15 kilometers which was created at Uralmash, has been accepted for production. Two experimental models of it have passed tests successfully. Each of the earth-excavating giants is an enterprise equipped with 116 electrical machines. The derrick is as high as a 20-story apartment house. The new rigs will operate in the Urals the Caucasus and West Siberia. They will enable a look into the still unknown layers of the earth's crust and will help geologists to explore new fields of oil, gas and other minerals. (V. Danilov) [Text] [Moscow PRAVDA in Russian 11 Jul 81 p 1] 11409

KARSHI STEPPE GAS PRODUCTION--The master valve was turned and natural gas of the new Karshi Steppe field rushed forth from the earth's depths. The gas-and-chemicals complex that is being established in the desert has received meaningful growth: the annual recovery will be increased by 2 billion cubic meters of gas. Eleven wells have been drilled here, facilities for them have been built up, and an installation for the integrated treatment of gas has been erected. Cleaned and dried, the gas will move along a 100-kilometer trunk pipeline to the Mubarek gas refinery. [Text] [Moscow KRASNAYA ZVEZDA in Russian 9 Jun 81 p 1] 11409

EXCAVATORS FOR KANSK-ACHINSK--Zhdanov (Donetskaya Oblast)--11 Jul--The accelerated development of coal deposits of Siberia and Kazakhstan will be provided with continuous-action rotary complexes whose output has been mastered in the Donbass. Today Zhdanovtyazhmash [Zhdanov Heavy Machinebuilding Association] has completed loading of the first lot of equipment of the main unit for Kansk-Achinsk Basin miners. The steel giant will mine up to 15.5 million tons of coal per year. The excavator's creators studied the specifics of its operation under severe natural conditions. All load-bearing structure has been made from specially strengthened steel that will withstand temperatures below -40 degrees. (TASS) [Text] [Moscow PRAVDA in Russian 12 Jul 81 p 2] 11409

NEW LONGWALL MINER--Donetsk--25 Jul--The new mechanized IKM-103 longwall mining machine, which is intended for the excavation of thin seams, which includes almost half of the coal reserves of the old Donbass [Donets Coal Basin], has been turned over for industrial operation. The complex uses the original design solutions. The K-103 cutter-loader operates in the seam's footwall without hollows. The section of the M-103 support is four-post, posts with double-hydraulic maneuverability and increased load-bearing capability. A. Yaroshenko's brigade, from the Yasinovskoye Underground Mine Administration of Sovetskugol' [Sovetskaya Coal-Mining Association] has learned to operate the complex. During the final phase of the training the miners made more than 30 recommendations, which improved the design of the mechanisms and components. They will now mine up to 950 tons of coal per day from a longwall with a seam about 70 centimeters thick. The new complex is one of the first machines whose creation was called for by the regional Ugol' program that was worked out by the Donetsk Scientific Center of the Ukrainian SSR Academy of Sciences and the industry's institutes for 1981-1985. This program also calls for the creation of equipment for breakage faces with a seam of about 30 centimeters, and also for seams with a sharp dip. (Guest PRAVDA correspondent M. Bublichenko) [Text] [Moscow PRAVDA in Russian 26 Jul 81 p 2] 11409

SPONTANEOUS COMBUSTION OF COAL--Dear comrade! A new book has been readied for printing at Izdatel'stvo "Nedra." It is the "Katalog ugley SSSR, sklonnykh k samovozgoraniyu" [Catalog of USSR Coals That Are Susceptible to Spontaneous Combustion]. Lindenay, N. I., Mayevskaya, V. M., Vakhrusheva, Ye. S., et al--25 pages, 1 ruble and 60 kopecks. The characteristics of the coal from underground-mine seams of deposits in the eastern USSR are cited by degree of their susceptibility to spontaneous combustion, the qualitative and petrographic composition of the coal, and the basic principles for evaluating the spontaneous combustibility of coals. Methods for identification and classification and the consistency in distribution of the degree of the self-combustibility of coal by area and by seam thickness are presented. For underground coal-mine engineers and technicians and for technicians of underground coal mines and of design and scientific-research institutes. It can be used in planning a set of fire-prevention measures at the mine-operation design stage, and also during choice of technological schemes for clearing work under various mining-geology conditions. You can get the book in local bookstores that disseminate scientific and technical literature or order it through the book mail-order sections of the stores: No 17--199178, Leningrad, V. O., Sredniy prospekt, 61; and No 59--127412, Moscow, Korovinskoye shosse, 20. (Izdatel'stvo "Nedra") [Text] [Moscow UGOL' in Russian No 5, May 81 p 8] 11409

SVERDLOVSK ANTHRACITE OUTPUT--Sverdlovsk (Voroshilovgradskaya Oblast)--V. Pinchuk's brigade at the Odesskaya Underground Mine today mined its 100,000-th ton of anthracite above plan since the start of the year. This is a most meaningful addition to the task among the oblast's brigade that have integrated mechanization. An improvement of mining equipment helped the collective to achieve this indicator. [Text] [Baku VYSHKA in Russian 24 Jul 81 p 1] 11409

ALL-TERRAIN PIPELAYING CRANE--Ukhta (Komi ASSR)--The advantages of two machines--an underground crane and an all-terrain vehicle--are combined in one unit, the series production of which has been undertaken by the Ukhta Machinery Plant. It was created on the basis of the T-130 tractor, and it is intended for building trunk pipelines in Siberian and Far Northern environments. The machine, equipped with a generator, can also be used as a power plant under field conditions. [Text] [Baku VYSHKA in Russian 23 Jul 81 p 1] 11409

UZBEK GAS-TREATMENT FACILITY--"Gas is being received!" reported the operators. The first cubic meters of fuel were fed to the cleaning installation from five new wells at the Zevardy field in the Karshi Steppe. This is the third phase of the gas field. Now its annual productivity has been increased 1.5-fold, from 4 to 6 billion cubic meters. The third phase of the Zevardi field is a complicated production complex which includes wells, various pipelines, a gas-gathering terminal, installations for drying, cooling and collecting condensate, and a system for controlling and monitoring the facilities. Zevardy gas is notable in that it contains a small amount of sulfur. This greatly facilitates the process of cleaning it at the Mubarek gas refinery, for which the field serves as a raw materials base. The new gas-field capacity went into operation greatly ahead of the standard deadline. The prime contracting collective--Administration No 4 of Uzbekgazpromstroy [Trust for the Construction of Uzbek SSR Gas Industry Enterprises] (its chief is Yu. I. Pen'kov) coped honorably with its socialist commitment. Workers of the subcontracting organizations that installed the equipment, instruments and insulation and did other work also distinguished themselves. Among the winners of the competition were the brigades of installers under G. Goryachenko and M. Naumov and of electrical welders under N. Khanzin. Section chiefs Frants Dansberg and

Vladislav Malykhin organized the work with precision. The third phase of the Zevardy oilfield went on stream at its designed capacity. The installers are moving their forces to the next startup facilities of the Mubarek gas complex. (UzTAG [Uzbek Telegraph Agency]) [Text] [Tashkent PRAVDA VOSTOKA in Russian 4 Jul 81 p 3] 11409

CSO: 1822/210

SUBJECT OF MOTOR TRANSPORT INTO MANGYSHLAK TURNPIKE REVIEWED

Alma Ata KAZAKHSTANSKAYA PRAVDA in Russian 1 Jul 81 p 2

[Article by G. Dil'dyayev, city of Shevchenko: "On the Mangyshlak Roads"]

> [Text] We must not underestimate all that has been done and is being done by the motor vehicle workers of Mangyshlak for the creation of a large industrial region on the peninsula. Not long ago when there were no runways here and the railroad branch line did not yet extend into the desert region, the first tons of freight were delivered to uninhabited places by the drivers of motor vehicles. The absolute lack of roads, the dust storms, the thirst--all these were overcome by the first ones to penetrate this area.
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> Today too one cannot conceive of this region without the strenuous labor of the motor transport workers. With the undeveloped network of railroads, it falls to their lot to handle the bulk of the shipments of national economic goods. Comrade T. Dzhumagulo, the chief of the Mangyshlakskaya Oblast Production Motor Transport Administration, describes for our correspondent the nature of this work and problems involved in the development of the main transport of the territorial production complex.

Having accomplished extensive development of socialist competition for a worthy welcome to the 26th CPSU Congress, the collectives of all the nine motor transport enterprises of our administration have successfully completed the assignments of the 10th Five-Year Plan. The plan for shipment of goods was fulfilled ahead of schedule by 20 October 1980. Transported over and above the plan were 2.6 million tons of freight and 3.2 million passengers. It should be noted also that during the five-year period the volume of transport work more than doubled.

A good start has been made by the motor vehicle operators since the beginning of the current year. They have fulfilled the six-month plans for all the basic indicators. These successes were made possible by the important organizational and political education work in the labor collectives and the dedicated labor of the many thousands of members of the detachment of motor vehicle workers of Mangyshlak.

Undoubtedly a positive role was played by the technical reequipping of our ATP [motor transport regiments], improvement of the transport process, and efficient use of the rolling stock. The average carrying capacity of the transport fleet rose from 4 to 6.4 tons. Nearly 1,700 new trucks and buses were obtained.

At the same time, the accelerated development of the economics of the region made it necessary for us to obtain a further increase in the capacities of the motor transport. What is be done to accomplish this task?

Coming into widespread usage, first of all, are centralized shipments which enable us to carry out efficient planning of the work of the rolling stock, to completely free the freight recipients from worry about the goods shipment, and to reduce the layover time for loading and unloading by mechanization of these processes. The proportion of centralized shipments now compromises 72 percent of the total volume as compared to 60 percent at the beginning of 1976. Good results have been obtained from the use of large-capacity motor vehicle trains and the widespread use of trailers.

The introduction of the collective forms of work has significantly increased the effectiveness of the motor transport operation. Whereas by the end of the Ninth Five-Year Plan we had not a single contract brigade, now there are 22 collectives operating by this method. Last year alone the contract brigades, which had available to them 13 percent of the total number of trucks, hauled 26 percent of the freight and brought in 34 percent of the profit of the administration as a whole.

The driver brigade of the ATP Mangyshlaktransagenstvo [Mangyshlak Transport Agency], headed by communist Nikolay Aleksandrovich Zabugoy, was one of the first organizations in Mangyshlak to begin working by the brigade contract method. The collective has achieved outstanding success year after year. Last year its transport per listed motor vehicle ton amounted to 74.403 ton-kilometers, which is 1.6 more than the figure for the enterprise as a whole. Deserving of praise is the drivers' collective of the brigade of Isa Spanov from the Beyneuskiy ATP. Working on the construction of the Shevchenko-Kalamkas motor road, it obtained the highest level of coefficient of use of the truck fleet--0.73.

Active support is being provided by the cooperation lent by the transport workers of Leningrad and Odessa. For example, the Shevchenko and Fort Shevchenko ATP's are working in close cooperation with the railroad station of Mangyshlak and the maritime port of Bautino.

Undergoing development is such an important undertaking as the transport expeditionary service for the population, a service which bears directly on the everyday life of the people. The ATP Mangyshlaktransagenstvo, established a year ago, now has 28 agencies and receiving points. Last year the enterprise provided 240,000 rubles of services for the population.

We are focusing the closest attention on the passenger transport. Buses service 16 city, 11 intercity and 15 special routes. The daily runs encompass nearly 2,300 trips and accommodate 125,000 passengers. In the summer additional routes are opened up to the workers' resort areas. Despite the extremely scattered locations of the populated points in the territory of the oblast, many of them are connected among themselves by bus transportation. In the past five years the volume of passenger transport increased by 98 percent, which is more than the increase prescribed in the plan assignments.

Obviously all this work would be paralyzed if we did not set up our own base and did not organize motor vehicle repair production. All the motor vehicle enterprises have built shops and specialized posts to provide diagnostic services for the repair and technical maintenance of the vehicles.

We have many workers proficient in their trade who, by competent use of the reserves entailed in the design of domestic motor vehicles, have greatly exceeded the normative operational periods without capital repair. Among these are Novokuznetsk ATP driver A. Aminov, PATP [field motor transport regiment] drivers A. Prosvirin and V. Afonin, Hero of Socialist Labor T. Kazbekov from the Zhetybay ATP, M. Tuyyebayev from the Fort Shevchenko ATP, and Zh. Zhuzbayev from the Yeraliyev ATP.

One of the chief tasks currently being fulfilled by the workers of the oblast is accelerated excavation of oil wells on Buzachi peninsula, a task assigned by the 26th CPSU Congress. A great deal has also been done for this project by the motor vehicle operators. Evidence of this is the awarding to the 10 best drivers of Mangyshlak of orders and medals which they received for high indicators in the work of developing the new oil and gas fields of the region.

The motor vehicle operators have been working with particular energy on the construction of the Shevchenko-Karzhanbas-Kalamkas road and on the building of a dam to protect the oil wells from the inundating waters of the Caspian. Assigned to this task is the bulk of the rolling stock of the motor vehicle enterprises. In April there was established here a separately allocated consolidated motor vehicle column consisting of more than 100 new large KamaAZ (Kama Motor Vehicle Plant] trucks. For work in the consolidated column we carried out organized recruitment of approximately 200 drivers over and above the republic limits and we organized the labor of these workers according to the shift method.

Despite the fulfillment of the basic indicators of the plan, the 10th Five-Year Plan showed a reduction in an important technical-economic indicator--the coefficient of use of the operational inventory (KIP). The basic reasons were: a sharp increase in the volume of shipments, receipt of a large volume of new equipment (KamAZ and KrAZ motor vehicles) which had not been operated previously, the lack of specialized bases for the repair and servicing of this equipment, and the acute shortage of driver personnel, especially for the new types of vehicles. In addition, in the last three years the working conditions have changed. Because of the construction of a motor road to the new oil wells, a large proportion of the motor vehicle fleet is operating in isolation from the main base and with a lack of good roads and a repair base at the sites. Equipment wears out quickly here and machine units and assemblies go out of order.

Because of this and because of the fact that in the near future we will be receiving a great many large trucks, there is an urgent need for the setting up on Mangyshlak of a plant for the repair of motor vehicles. As it is, we are compelled to go thousands of kilometers from the peninsula for capital repair of the assemblies. Need we say that this is very expensive?

We of course have internal reserves and we must and will work persistently to improve the technical-economic indicators and, in particular, to increase the production of motor vehicles for the line, to reduce the number of runs without load, to cut down the idle time, and to make more extensive use of the progressive methods of transport.

There are serious and crucial tasks facing the administrative collective in 1981 and in the 11th Five-Year Plan as a whole. By the end of the five-year plan freight turnover should increase 1.4-fold and freight shipments will be replenished with nearly 1,500 new vehicles.

The motor vehicle operators of Mangyshlak are applying all their strength to the successful fulfillment of the plans and socialist obligations and to the making thereby of a worthy contribution to the further development of the economics of industrial Mangyshlak, as mapped out by the decisions of the 26th CPSU Congress.

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